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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,771	10/11/2000	Takashi Abe	Q60938	5049

7590 04/02/2002  
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2100 Pennsylvania Avenue N W  
Washington, DC 20037

EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 04/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/685,771

Applicant(s)

ABE, TAKASHI

Examiner

Ishwar B Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 February 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-10 and 13-18 is/are pending in the application.
- 4a) Of the above claim(s) 4-7 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8-10,17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 8-10 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marx et al., US Patent No. 5,376,759, hereafter referred to as Marx and further in view of Ishigaki et al., US Patent 4,758,922, hereafter Ishigaki and Akiba et al., US Patent 6,353,540, hereafter Akiba).

Regarding claims 1 and 10, Marx discloses a substrate comprising:

pads which are provided on the surface of said substrate (integrated circuit positions 18 with plated through holes 28, see figure 3, column 7, line 39-55); and

surface layers which are kept to the ground potential and cover the surface of said substrate except said pads and their periphery, wherein said surface layers include a top main surface and a bottom main surface (top and bottom outermost layers 20, 22 of the sandwich arrangement are also conductive layers and are for connection to electrical ground potential, see figure 3,4, column 7, line 39-55); and

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the conductive elements which electronically connect said top and main surface and said bottom main surface (the conductive edge shielding layer 43 of the edge surface 50 extends to the top and bottom outermost conductive layers 20,22 and is electrically connected directly to each of the outer conductive layers, see figure 3,4, column 7, line 55-68); but

fail to explicitly disclose the conductive element cover the entire side of said substrate with said top and main surface and said bottom main surface. However, the crux of the invention of Marx is to provide the complete side shielding and wherever it is not possible to provide the continuous shielding, the area is covered by conductive via hole with alternative location to cover the gap between two vias, see arrangement of via 46. Further, Ishigaki (see Ishigaki figure 1, conductive layer 13), and Akiba (see Akiba figure 30, layer 706-12), discloses such shield layer for shielding the assembly from unwanted disturbances and in and out of the assembly. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the circuit board of Marx with conductive element covering the entire side of said substrate with said top main surface and said bottom main surface as taught by Ishigaki and Akiba, in order to reduce the disturbances in and out of the circuit and the resultant better performance of the device.

Regarding claims 8 and 17, the modified assembly of Marx further discloses a signal layer which is provided between said top main surface and said bottom main

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surface, and has a pattern which is connected to at least one of said pads (internal signal layer 12 having connection with the plated through hole 28, see figure 3, 4, column 7, line 39-55).

Regarding claims 9 and 18, the modified assembly of Marx further discloses the interval between said pads and said surface layer defined to prevent said pad from short-circuiting (integrated circuit positions 18, shown as rectangular outlines in outermost layer 20, having associated plated through hole 18, see figure 3, column 7, line 39-55).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1 and 10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar B Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 308 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp  
March 27, 2002

  
K. K. K.  
Primary Examiner